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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,968	11/02/2001	Hans-Ulrich Demuth	20488-26DIV	3916

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EXAMINER
MELLER, MICHAEL V

ART UNIT	PAPER NUMBER
1651	

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/682,968	DEMUTH ET AL.	
	Examiner	Art Unit	
	Michael V. Meller	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) 1-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-6 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/365,404 .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of administering to a mammal a therapeutically effective amount of an inhibitor of dipeptidyl peptidase (DPIV) and physiologically acceptable adjuvants and/or excipients for reducing in said mammal activity of endogenous DPIV, does not reasonably provide enablement for administering any and all effectors for reducing enzymatic activity of DPIV and DP IV-analogous enzymes. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

The specification is only enabled for a method of administering to a mammal a therapeutically effective amount of an inhibitor of dipeptidyl peptidase (IV) and physiologically acceptable adjuvants and/or excipients for reducing in said mammal activity of endogenous DPIV. The specification does **not** teach administering any and all

effectors for reducing enzymatic activity of DPIV and DP IV-analogous enzymes as the claims recite.

The art of biotechnology is a highly unpredictable art and it would be an undue burden for one of ordinary skill in the art to test any and all effectors for reducing enzymatic activity of DPIV and DP IV-analogous enzymes. If it was so well known to one of ordinary skill in the art that any and all effectors for reducing enzymatic activity of DPIV and DP IV-analogous enzymes would work in the claimed method, then it would be clear from the prior art that such is the case. There is no prior art known to this examiner that establishes that one of ordinary skill in the art would have known at the time the invention was made that any and all effectors for reducing enzymatic activity of DPIV and DP IV-analogous enzymes would work in the claimed method otherwise it would have turned up in the prior art search and used against the instant claims.

Applicant has only shown in their examples the use of alanyl-pyrolidid, isoleucyl-thiazolidide, the pseudosubstrates N-valyl-prolyl, O-benzoyl hydroxylamine, aminoacyl-thiazolidides, and isolleucyl-thiazolidide, see specification at pages 8-9. With only knowing these few inhibitors of DP IV, it is clear that such broad claims are not enabled by the instant specification when one of ordinary skill in the art is only given these limited amount of inhibitors. As is further evident also from claim 3, applicant intends to claim a very large and broad category of "effector for reducing enzymatic acivity of DP IV" which there is simply not support in the specification for given the very limited disclosure. Enzyme are highly unpredictable and as such certain "effectors" may work

while others may not, there is simply such a high unpredictability in the art , thus for one of ordinary skill in the art to know which of the effectors would work requires a great amount of undue experimentation.

Thus, the claims are unduly broad and do not find proper support from the instant specification. Thus, the rejection is properly made.

The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The use of the phrase, "an effector for reducing enzymatic activity of DPIV and DPIV analogous enzymes" in claim 1 is confusing. What does applicant mean by this ? It appears that the activity of DPIV is inhibited, thus such a term is more appropriate. Applicant needs to be more definite in what they mean. Also, it appears that "hypoglycemia" is misspelled.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 97/40832.

The abstract of this WO teaches the use of DPIV inhibitors for lowering the blood glucose level in mammals, see abstract and title.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (Chen) in view of Efendic and Bachovchin et al. (Bachovchin).

Chen teaches that the actions of glucagon are recognized to promote hepatic glycogenolysis and glyconeogenesis which results in an elevation of the blood sugar

levels. It also teaches that dipeptidyl-peptidase IV is believed to readily inactivate glucagon-like peptide 1.

The reference does not teach that hypoglycemia is a dangerous disease and that compounds are known which inhibit the activity of dipeptidyl-peptidase IV.

Efendic teaches that hypoglycemia increases the risk of ventricular arrhythmia and is a dangerous consequence of insulin infusion, see col. 3, lines 4-8.

Bachovchin teach specific compounds which inhibit dipeptidyl-peptidase IV, see col. 6, lines 3-15.

It would have been obvious to one of ordinary skill in the art to use inhibitors of dipeptidyl-peptidase IV and glucagon in order to raise the blood sugar level in a mammalian organism since Chen makes it clear that glucagon increases blood sugar levels (which is desirable to someone who suffers from hypoglycemia) and that dipeptidyl-peptidase IV is believed to readily inactivate glucagon-like peptide 1. Since one would want dipeptidyl-peptidase IV to be inhibited since it inactivates the activity of glucagon which raises the blood sugar level then it would be obvious to use a dipeptidyl-peptidase IV inhibitor as shown in Bachovchin to allow glucagon to raise the blood sugar levels in someone who suffers from hypoglycemia since hypoglycemia is a dangerous disease as taught by Efendic.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/40832 taken with Galloway et al.

The teachings of WO are above. It is not clear if glucagon is administered with the DPIV inhibitor (due to the poorly worded abstract), in the event it is not, then the secondary reference Galloway is herein used.

Galloway teaches that GLP-1 is well known in the art to be used to treat hypoglycemia.

It would have been obvious to one of ordinary skill in the art to administer GLP-1 along with DPIV inhibitors to treat hypoglycemia since Galloway establishes that GLP-1 is well known to be used to treat hypoglycemia, thus to use glucagon instead of GLP-1 is simply the choice of the artisan in an effort to optimize the desired results. To use the DPIV inhibitor and glucagon together for the same purpose, to treat hypoglycemia, is also obvious since it is well known that it is *prima facie* obvious to combine two or more ingredients each of which is taught by the prior art to be useful for the same purpose in order to form a third composition which is useful for the same purpose. The idea for combining them flows logically from their having been used individually in the prior art. *In re Sussman,* 1943 C.D. 518; *In re Pinten*, 459 F.2d 1053, 173 USPQ 801 (CCPA 1972); *In re Susi*, 58 CCPA 1074, 1079-80; 440 F.2d 442, 445; 169 USPQ 423, 426 (1971); *In re Crockett*, 47 CCPA 1018, 1020-21; 279 F.2d 274, 276-277; 126 USPQ 186, 188 (1960).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Meller whose telephone number is 703-308-4230. The examiner can normally be reached on Monday thru Friday: 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 703-308-4743. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0294 for regular communications and 703-308-0294 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Michael V. Meller
Examiner
Art Unit 1651

MVM
June 20, 2002